Application Number 10/767,545
Amendment responsive to Final Office Action mailed July 30, 2007

AMENDMENTS TO THE CLAIMS

This listing of claims will replace all prior versions and listings of claims in the application.

Listing of Claims:

Claims 1-18 (Cancelled).

Claim 19 (Currently Amended):   A computer-readable medium comprising instructions to cause a processor to:

select a first parameter configuration for a neurostimulator;

receive an indication of observed efficacy of the first parameter configuration; and

select a branch of a decision tree based on the indication of observed efficacy and a position of the first parameter configuration within the decision tree, wherein the decision tree defines a hierarchy of possible parameter configurations; and

select a second parameter configuration for the neurostimulator based on the selected branch of the indication of observed efficacy and a set of additional electrode configurations identified by a decision tree.

Claim 20 (Original):   The computer-readable medium of claim 19, wherein the parameter configurations include electrode configurations, each of the electrode configurations defining a combination of two or more electrodes for delivery of neurostimulation energy.

Claim 21 (Original):   The computer-readable medium of claim 20, wherein each of the electrode configurations defines polarities for electrodes in the combination.

Claim 22 (Original):   The computer-readable medium of claim 20, wherein the electrodes are carried by two or more implanted leads, and the electrodes are associated with different target regions within a body of a patient.

Claim 23 (Original):   The computer-readable medium of claim 22, wherein the leads are implanted proximate a spine of a patient.

-2-

Application Number 10/767,545
Amendment responsive to Final Office Action mailed July 30, 2007

Claim 24 (Currently Amended):   The computer-readable medium of claim 20, wherein the instructions cause the processor to iteratively select additional electrode configurations for the neurostimulator based on the indication of observed efficacy of preceding electrode configurations and positions of the preceding electrode configurations within the decision tree, and terminate the iterative selection of the additional electrode configurations when one or more termination criteria are satisfied.

Claim 25 (Original):   The computer-readable medium of claim 24, wherein the termination criteria include selection of one of the electrode configurations with an observed efficacy that satisfies a threshold efficacy.

Claim 26 (Original):   The computer-readable medium of claim 25, wherein the termination criteria include an iteration limit.

Claim 27 (Currently Amended):   The computer-readable medium of claim 20, wherein the instructions cause the processor to:

iteratively select additional electrode configurations for the neurostimulator based on observed efficacy of preceding electrode configurations and positions of the preceding electrode configurations within the decision tree;

terminate the iterative selection of the additional electrode configurations at a final electrode configuration when one or more termination criteria are satisfied; and

program the neurostimulator to employ the final electrode configuration in delivery of neurostimulation therapy.

Claim 28 (Original):   The computer-readable medium of claim 27, wherein the neurostimulator is a spinal cord stimulator, and the final electrode configuration includes electrodes deployed on one more implanted spinal leads.

Claim 29 (Original):   The computer-readable medium of claim 28, wherein the final electrode configuration defines a combination of two electrodes from a set of at least eight electrodes.

-3-

Claim 30 (Original): The computer-readable medium of claim 19, wherein the first parameter configuration includes a first electrode configuration and the second parameter configuration includes a second electrode configuration, wherein the first electrode configuration is defined by a root node in the decision tree, the computer-readable medium further comprising instructions to cause the processor to expand the root node to produce a next-level node defining the second electrode configuration when the observed efficacy for the first electrode configuration does not satisfy a threshold efficacy.

Claim 31 (Original): The computer-readable medium of claim 30, further comprising instructions to cause the processor to receive an indication of the efficacy of the second electrode configuration defined by the next-level node and further expand the next-level node to produce one or more additional next-level nodes defining additional electrode configurations until one of the electrode configurations associated with one of the next-level nodes satisfies the threshold efficacy or an iteration limit is reached.

Claim 32 (Original): The computer-readable medium of claim 19, wherein the instructions cause the processor to select the first and second parameter configurations by suggesting the first and second parameter configurations to a user.

Claim 33 (Original): The computer-readable medium of claim 19, wherein the instructions cause the processor to receive an indication relating to observed efficacy by receiving user input indicating observed efficacy.

Claim 34 (Original): The computer-readable medium of claim 19, wherein the instructions cause the processor to update the decision tree based on the observed efficacy.

Claim 35 (Currently Amended): The computer-readable medium of claim ~~19~~34, wherein the instructions cause the processor to update the decision tree based on the observed efficacy for a particular patient.

-4-

Application Number 10/767,545
Amendment responsive to Final Office Action mailed July 30, 2007

Claim 36 (Original): The computer-readable medium of claim 19, wherein the instructions cause the processor to apply a first decision tree to determine a neurostimulation therapy type, neurostimulation device type, lead type and symptomatic indication, and apply a second decision tree based on the determination to select the second parameter configuration.

Claim 37 (Currently Amended): A device comprising a processor programmed to:
  select a first parameter configuration for a neurostimulator;
  receive an indication of observed efficacy of the first parameter configuration; ~~and~~
  select a branch of a decision tree based on the indication of observed efficacy and a position of the first parameter within the decision tree, wherein the decision tree defines a hierarchy of possible parameter configurations to guide in the selection of parameter configurations; and
  select a second parameter configuration for the neurostimulator based on the selected branch of the ~~indication of observed efficacy and a set of additional electrode configurations identified by a~~ decision tree.

Claim 38 (Original): The device of claim 37, wherein the parameter configurations include electrode configurations, each of the electrode configurations defining a combination of two or more electrodes for delivery of neurostimulation energy.

Claim 39 (Original): The device of claim 38, wherein each of the electrode configurations defines polarities for electrodes in the combination.

Claim 40 (Original): The device of claim 38, wherein the electrodes are carried by two or more implanted leads, and the electrodes are associated with different target regions within a body of a patient.

Claim 41 (Original): The device of claim 40, wherein the leads are implanted proximate a spine of a patient.

-5-

Application Number 10/767,545
Amendment responsive to Final Office Action mailed July 30, 2007

Claim 42 (Currently Amended):   The device of claim 38, wherein the processor iteratively selects additional electrode configurations for the neurostimulator based on the indication of observed efficacy of preceding electrode configurations and positions of the preceding electrode configurations within the decision tree, and terminates the iterative selection of the additional electrode configurations when one or more termination criteria are satisfied.

Claim 43 (Original):   The device of claim 42, wherein the termination criteria include selection of one of the electrode configurations with an observed efficacy that satisfies a threshold efficacy.

Claim 44 (Original):   The device of claim 43, wherein the termination criteria include an iteration limit.

Claim 45 (Currently Amended):   The device of claim 38, wherein the processor:

iteratively selects additional electrode configurations for the neurostimulator based on observed efficacy of preceding electrode configurations and positions of the preceding electrodes within the decision tree;

terminates the iterative selection of the additional electrode configurations at a final electrode configuration when one or more termination criteria are satisfied; and

programs the neurostimulator to employ the final electrode configuration in delivery of neurostimulation therapy.

Claim 46 (Original):   The device of claim 45, wherein the neurostimulator is a spinal cord stimulator, and the final electrode configuration includes electrodes deployed on one more implanted spinal leads.

Claim 47 (Original):   The device of claim 46, wherein the final electrode configuration defines a combination of two electrodes from a set of at least eight electrodes.

-6-

Application Number 10/767,545
Amendment responsive to Final Office Action mailed July 30, 2007

Claim 48 (Original): The device of claim 38, wherein the first parameter configuration includes a first electrode configuration and the second parameter configuration includes a second electrode configuration, wherein the first electrode configuration is defined by a root node in the decision tree, and the processor expands the root node to produce a next-level node defining the second electrode configuration when the observed efficacy for the first electrode configuration does not satisfy a threshold efficacy.

Claim 49 (Original): The device of claim 48, wherein the processor receives an indication of the efficacy of the second electrode configuration defined by the next-level node and further expands the next-level node to produce one or more additional next-level nodes defining additional electrode configurations until one of the electrode configurations associated with one of the next-level nodes satisfies the threshold efficacy or an iteration limit is reached.

Claim 50 (Original): The device of claim 37, wherein the processor selects the first and second parameter configurations by suggesting the first and second parameter configurations to a user.

Claim 51 (Original): The device of claim 37, wherein the processor receives an indication relating to observed efficacy by receiving user input indicating observed efficacy.

Claim 52 (Original): The device of claim 37, wherein the processor updates the decision tree based on the observed efficacy.

Claim 53 (Currently Amended): The device of claim 37~52, wherein the processor updates the decision tree based on the observed efficacy for a particular patient.

Claim 54 (Currently Amended): The device of claim 37, wherein the processor applies a first decision tree to determine a neurostimulation therapy type, neurostimulation device type, lead type and symptomatic indication, and applyingapplies a second decision tree based on the determination to select the second parameter configuration.

-7-